Optical and structural characterization of thin films containing metallophthalocyanine chlorides

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Résumé en anglais	The structural and optical investigation of thin films containing aluminum and gallium phthalocyanine chlorides is presented. The films were fabricated by Physical Vapor Deposition technique onto quartz substrates and annealed after fabrication in an ambient atmosphere for 24 h at the temperature equal to 150 °C or 250 °C. The experimental results and theoretical calculation of the Third Harmonic Generation process are reported. The third order nonlinear optical properties are expected and can be more or less accurately predicted due to the assembly of the molecules and theoretical calculations of the frequency-dependent dipole polarizabilities, third hyperpolarizabilities, third order susceptibilities, frontier and second frontier molecular orbitals. These parameters were used to understand the relationship of optical properties with the molecular structures. We found that the annealing process causes formation of nanostructures and the value of the third order optical susceptibility makes these materials interesting for future nonlinear optical applications.
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